Abstracts

Toward an optimum design of NRD-guide and microstrip-line transition for hybrid-integration technology

A. Bacha and K. Wu. "Toward an optimum design of NRD-guide and microstrip-line transition for hybrid-integration technology." 1998 Transactions on Microwave Theory and Techniques 46.11 (Nov. 1998, Part I [T-MTT]): 1796-1800.

The newly proposed hybrid-integration technology of a nonradiative dielectric (NRD)-guide and planar structure offers an attractive alternative for designing microwave and millimeter-wave integrated circuits and systems. This paper presents an attempt with a transmission-line matrix (TLM) analysis toward accurate design and optimization of the NRD/microstrip-line transitions for the proposed scheme. Electrical performance of the transitions is studied with respect to various parametric effects such as the influence of coupling slot size, NRD and microstrip-line open-ends, as well as dielectric permittivity. Experiments with the designed transitions are made to validate our TLM analysis, as well as to demonstrate good performance. Calculated and measured results suggest that such a hybrid integration have a promising future as high-frequency building blocks.

❑ Return to main document.